

## ABSTRACT

A sensor system featuring a field angle compression telescope optical system for measuring atmospheric trace gases is provided. According to an embodiment of the present invention, the telescope optical system condenses the field angle of received light  
5 with respect to a cross-track plane, while leaving the field angle with respect to an along-track plane uncompressed. Such an anamorphic telescope design provides a wide field of view, while allowing information regarding the altitude or height distribution of a gas to be obtained. According to another embodiment of the present invention, the field angle of received light is compressed by magnifying the received light by a value less than 1.0  
10 in all directions.